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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,160	01/24/2002	Rajendra Yavatkar	PW 0249728 P12820	9480

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EXAMINER

NGUYEN, STEVEN H D

ART UNIT PAPER NUMBER

2616

DATE MAILED: 11/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/056,160

Applicant(s)

YAVATKAR ET AL.

Examiner

Steven HD Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 31-58 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 31-35, 37-42, 44-47, 49-51 and 53-57 is/are rejected.
- 7) ☒ Claim(s) 36, 43, 48, 52 and 58 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 31-35, 37-42, 44-47, 49-51 and 53-57 rejected under 35 U.S.C. 103(a) as being unpatentable over Boucher (USP 6427173) in view of Paver (USP 6049882).

Regarding claims 31-32 and 38, Boucher discloses a system to manage energy usage of a processor, comprising a data communication network such as internet (Fig 1, Ref 25); a transmitter (Fig 1, Ref 22), coupled to the data communication network, to invoke a protocol state machine (Fig 12, Ref 159 has protocol state machine such protocol stack for send packet and wait for ACK, See col. 2, lines 27-42) to send a packet and to wait for an acknowledgment of receipt; a receiver (Fig 12, Ref 237 or Fig 1, Ref 20), in communication with the transmitter coupled to the data communication network, to receive, process, and verify the packet and to send the acknowledgment of receipt of the packet (col. 2, lines 27-42, col. 7, lines 34-56 and col. 8, lines 22-63); a buffer, coupled to the protocol state machine in the transmitter, to store an incoming packet to be transmitted by the transmitter (Col 14, line 48 to col. 15, line 28); and a processor, coupled to the protocol state machine in the transmitter (Fig 1 and 12, the devices has processor, CPU or microprocessor), the power consumption of the CPU based on how much protocol stack must performing the load (Col. 3, lines 64 to col. 4, lines 12). However, Boucher fails to discloses the protocol state machine manages a power level of the processor based on a utilized capacity of the buffer. In the same field of endeavor, Paver discloses the protocol state

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machine manages a power level of the processor based on a utilized capacity of the buffer (controlling the power consumption of the processor based on the queue length of the sender for transmitting data by using protocol state machine such asynchronous protocol Fig 1, 7 and 8 and col. 6, lines 1-14).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to apply a method and system for using protocol stack to control the consumption power of processor based on the queue length as disclosed by Paver into the teaching of Boucher. The motivation would have been to reduce the power consumption of the processor.

Regarding claim 33, Paver discloses the processor in the transmitter begins in a high power, high clock rate mode (Col. 5, lines 32-56 and Col. 6, lines 32-37).

Regarding claim 34, Boucher discloses the transmitter performs tasks to create packets for transmission, the tasks including at least one of dividing data into packets, adding protocol headers, or computing checksums (Fig 12, Ref 159).

Regarding claim 35, Boucher discloses the processor enters a low power, low clock rate mode while waiting for the acknowledgment of receipt of the packet from the receiver (Col. 5, lines 49-56).

Regarding claim 37, Boucher discloses the receiver includes an application buffer and after the receiver receives the packet, the packet is stored in the application buffer (Fig 21, Ref 460).

Regarding claim 39, Paver discloses the receiver processor begins in a low power, low clock rate mode (Col. 5, lines 49-56).

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Regarding claims 40, 42, 47 and 51, Paver discloses the receiver processor enters a high power, high clock rate mode when the application buffer reaches a maximum capacity (Col. 5, lines 49-56).

Regarding claims 41, 45-46, 50 and 54-55, Boucher discloses an article comprising receiving a data packet at a receiver protocol state machine, the data packet being transmitted from a transmitter protocol state machine over a data communication network such as internet (Fig 12, Ref 237 or 159 includes protocol state machine, protocol stack); depositing the data packet in an application buffer (Fig 21, Ref 460); processing and verifying the data packet (Col. 8, lines 39-62); and transmitting an acknowledgment of receipt of the data packet to the transmitter protocol state machine (Col. 2, lines 26-42). However, Boucher fails to disclose the receiver protocol state machine manages a power level of a processor coupled to the receiver protocol state machine based on a utilized capacity of the application buffer. In the same field of endeavor, Paver discloses the protocol state machine manages a power level of the processor based on a utilized capacity of the application buffer (controlling the power consumption of the processor based on the queue length of the sender for transmitting data by using protocol state machine such asynchronous protocol Fig 1, 7 and 8 and col. 6, lines 1-14).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to apply a method and system for using protocol stack to control the consumption power of processor based on the queue length as disclosed by Paver into the teaching of Boucher. The motivation would have been to reduce the power consumption of the processor.

Regarding claims 44, 49 and 53, Boucher discloses a receiving host transmits an ACK to the sender (Col. 2, lines 27-42) and Paver discloses the utilized capacity of the application buffer and Ack in data packet reception, which are used to manage power and frequency of a processor in a transmitting device (Fig 1, 7 and 8 and col. 6, lines 1-14). However, Boucher and Paver fail to disclose a timer. However, the examiner take an official notice a timer is used to determine if an ACK has been received or not before the transmitting device to transmitting another packet is well known and expected in the art. Therefore, it would have been obvious to one of ordinary skill in the art to apply a timer into the teaching of Boucher and Paver. The motivation would have been to reduce the power consumption of the processor.

Regarding claim 56, Paver discloses after the packet has been transmitted, the protocol state machine switches the power level of the processor to a low power, low rate clock mode (Fig 1, 7 and 8 and col. 6, lines 1-14 and col. 5, lines 33-56).

Regarding claim 57, Paver discloses when the utilized capacity of the buffer reaches a threshold value, the protocol state machine switches the power level of the processor to a high power, high rate clock mode (Fig 1, 7 and 8 and col. 6, lines 1-14 and col. 5, lines 33-56, high power consumption based on queue length, if queue length pass a threshold).

Allowable Subject Matter

3. Claims 36, 43, 48, 52 and 58 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Steven HD Nguyen whose telephone number is (571) 272-3159. The examiner can normally be reached on 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on (571) 272-3134. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to be 'SHN', is written over a horizontal line.

Steven HD Nguyen
Primary Examiner
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November 6, 2006